

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: RTOS Kernel & System Drivers

Subject Code: 5TE02RKS1

Branch: M.Tech(VESD)

Semester: 2

Date: 16/05/2017

Time: 02:00 To 05:00

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

SECTION – I

- Q-1 Attempt the Following questions (07)**
- a. Draw the simple view of real time systems. 1
 - b. Define the term real time system. 1
 - c. Explain in brief with diagram relationship between real time systems and embedded systems. 1
 - d. Draw the structure of real time systems. 1
 - e. State the differences between soft and hard real time systems. 1
 - f. Draw the diagram for Typical cross-platform development environment between the host and the target embedded system. 1
 - g. State any four core functional similarities between RTOS and GPOS. 1
- Q-2 Attempt all questions (14)**
- a) Explain in detail with diagram linkers and linking process. 7
 - b) Explain in detail embedded loader and embedded monitor. 7
- OR**
- Q-2 Attempt all questions (14)**
- a) Write short note on linker command file. 7
 - b) Enlist three common image execution scenarios. Explain any two of them 7
- Q-3 Attempt all questions (14)**
- a) State most common RTOS scheduling algorithms. Explain each of them 7
 - b) Define and explain in detail task with diagram. 7
- OR**
- Q-3**
- a) Explain in detail different key characteristics of an RTOS. 7
 - b) Explain in detail different task states. 7

SECTION – II

- Q-4 Attempt the Following questions (07)**
- a. Define the term RTOS. 1



	b. Define the term kernel objects.	1
	c. Enlist most common RTOS kernel objects.	1
	d. State key characteristics of an RTOS.	1
	e. Draw the FSM for task execution states.	1
	f. Define the term semaphores	1
	g. Define the term message queues.	1
Q-5	Attempt all questions	(14)
	a) State different types of semaphores can support by RTOS kernel. Explain any two them in detail.	7
	b) State different message Queue operations. Explain any two them	7
	OR	(14)
Q-5	a) State different semaphores operations. Explain any two them	7
	b) State different message Queue uses. Explain any three them	7
Q-6	Attempt all questions	(14)
	a) Explain in detail pipes as an RTOS kernel object.	7
	b) State different types of dynamic memory management schemes. Explain any two of them in detail.	7
	OR	
Q-6	Attempt all Questions	(14)
	a) What are exceptions and interrupts? Explain in detail different applications of them.	7
	b) Classify synchronization and explain each of them	7

